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A new species of the spider genus *Cangoderces* (Araneae, Telemidae) from South Africa

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Abstract

A new species of the spider family Telemidae from South Africa, *Cangoderces globosa* **sp. n.**, is diagnosed, described and illustrated. This is the second species of the family to be recorded from the country. Consistent with the habits of most Afrotropical telemids, *C. globosa* **sp. n.** was collected by sifting leaf litter in forests.

Keywords

Taxonomy, forest, diagnosis, Afrotropical Region

Introduction

The spider family Telemidae currently contains ten genera and 78 species (World Spider Catalog 2018) that are distributed in tropical Africa, East and South-East Asia, and North and Central America (Brignoli 1977). Presently, 12 species are known from the Afrotropical Region: five in the genus *Cangoderces* Harington, 1951, four in the genus *Seychellia* Saaristo, 1978, two in the genus *Apneumonella* Fage, 1921, and the monotypic genus *Guhua* Zhao & Li, 2017 (World Spider Catalog 2018). Although most African telemids have been recorded from forest habitats (e.g. Wang and Li 2011), a single cavernicolous species, *C. lewisi* Harington, 1951, has been described from South Africa (Dippenaar-Schoeman and Jocqué 1997; Dippenaar-Schoeman and Myburgh 2009; Wang and Li 2011).

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The genus *Cangoderces* was erected by Harington (1951) based on seven females of the type species, *C. lewisi*, collected in the Cango Caves in south-western South Africa, and placed in the Leptonetidae: Ochyroceratinae. Subsequently, Machado (1956) transferred the genus to Telemidae and Brignoli (1978) described the male of *C. lewisi* for the first time. Besides the South African type species, four other species are known from tropical Africa: *C. christae* Wang & Li, 2011 occurs in the Ivory Coast, and three species have been described from Cameroon, *C. cameroonensis* Baert, 1985, *C. koupeensis* Baert, 1985 and *C. milani* Wang & Li, 2011.

In this paper, a new species of *Cangoderces* is described and illustrated based on material collected in Afromontane forests on the north-eastern escarpment of South Africa.

Material and methods

Two specimens (one male, one female) were collected by sifting leaf litter in an Afromontane forest and were subsequently examined and measured using a Leica M205 C stereomicroscope. Further details were studied under an Olympus BX41 compound microscope. All drawings were made using a drawing tube attached to an Olympus BX41 compound microscope and then inked onto ink jet plotter paper. The male left palp and female genitalia were examined and illustrated after they were dissected from the spiders' bodies. The internal genitalia of the female were removed and treated in lactic acid before illustration. All type specimens were preserved in 80% ethanol solution. Photographs were taken with an Olympus C7070 wide zoom digital camera (7.1 megapixels) mounted on an Olympus SZX12 stereomicroscope. The images were montaged using Helicon image stacking software. All measurements are given in millimetres. Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). Leg segments were measured on their dorsal side.

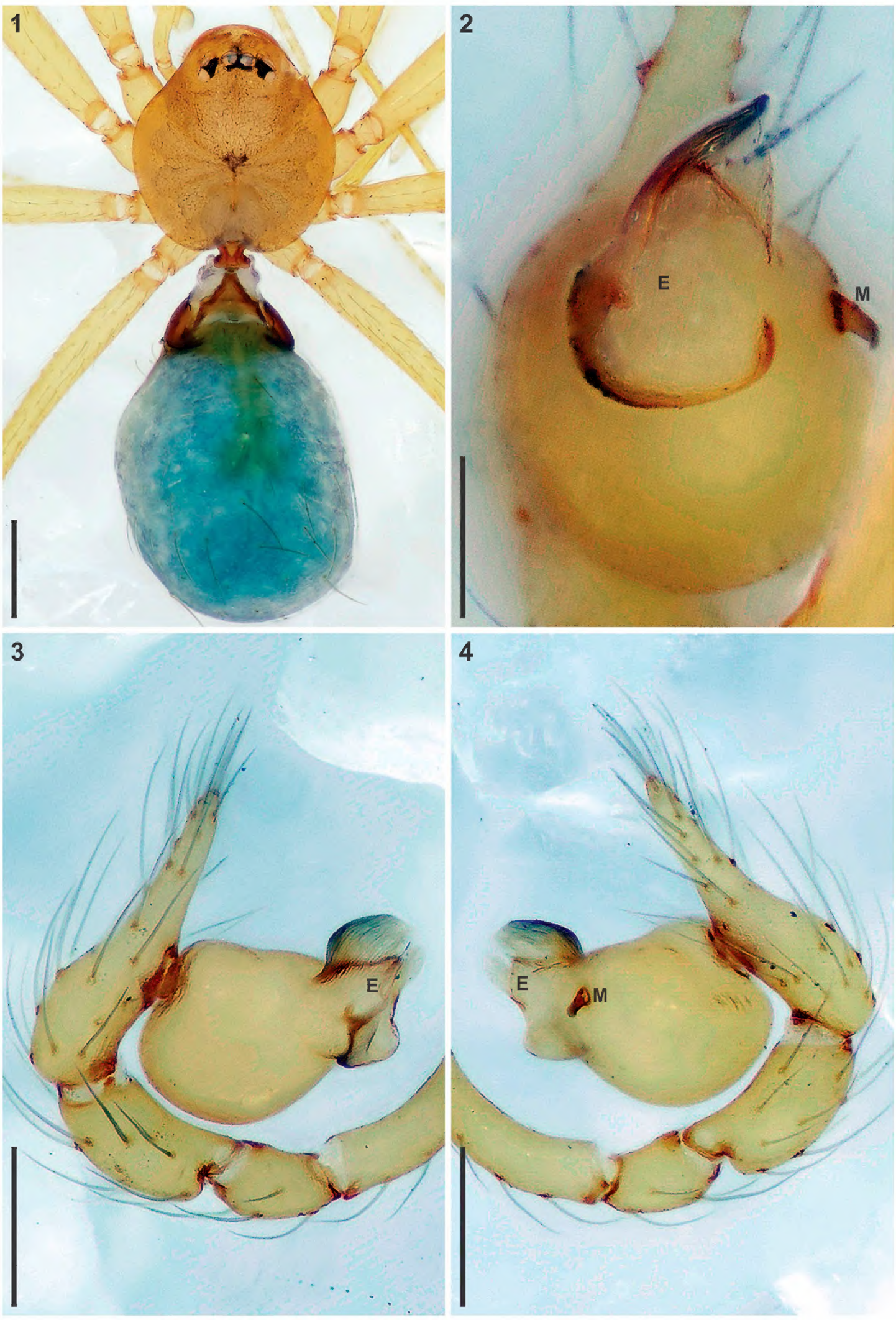
Abbreviations used in text include **AME** and **ALE** for anterior median and anterior lateral eyes, respectively. The type material has been deposited in the National Collection of Arachnida, Agricultural Research Council – Plant Protection Research, Pretoria, South Africa (**NCA**).

Taxonomy

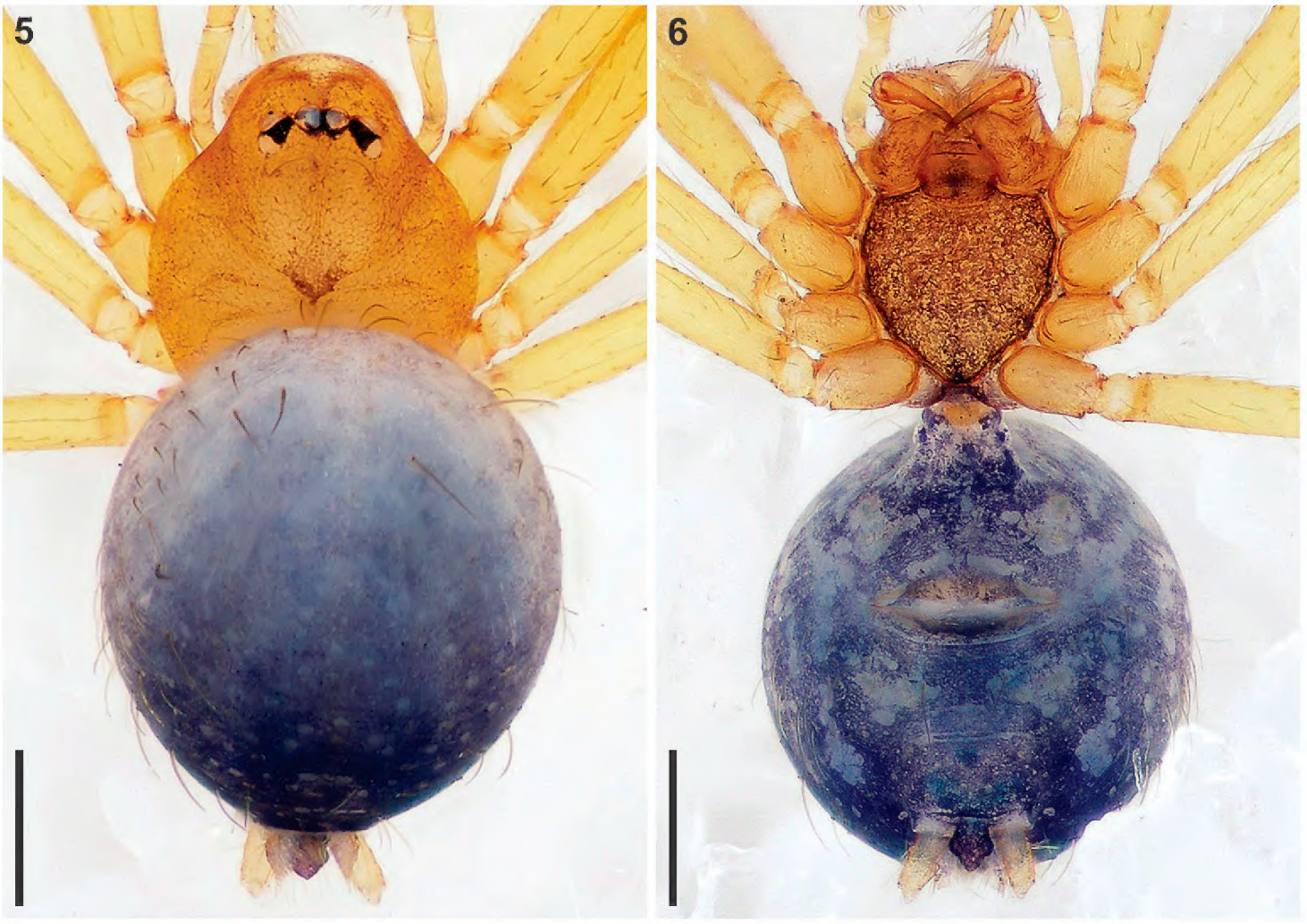
Family Telemidae Fage, 1913
Genus *Cangoderces* Harington, 1951

***Cangoderces globosa* sp. n.**
http://zoobank.org/3B36A566-7A07-4BEB-ACC4-726FFA4CF1C1
Figs 1–14

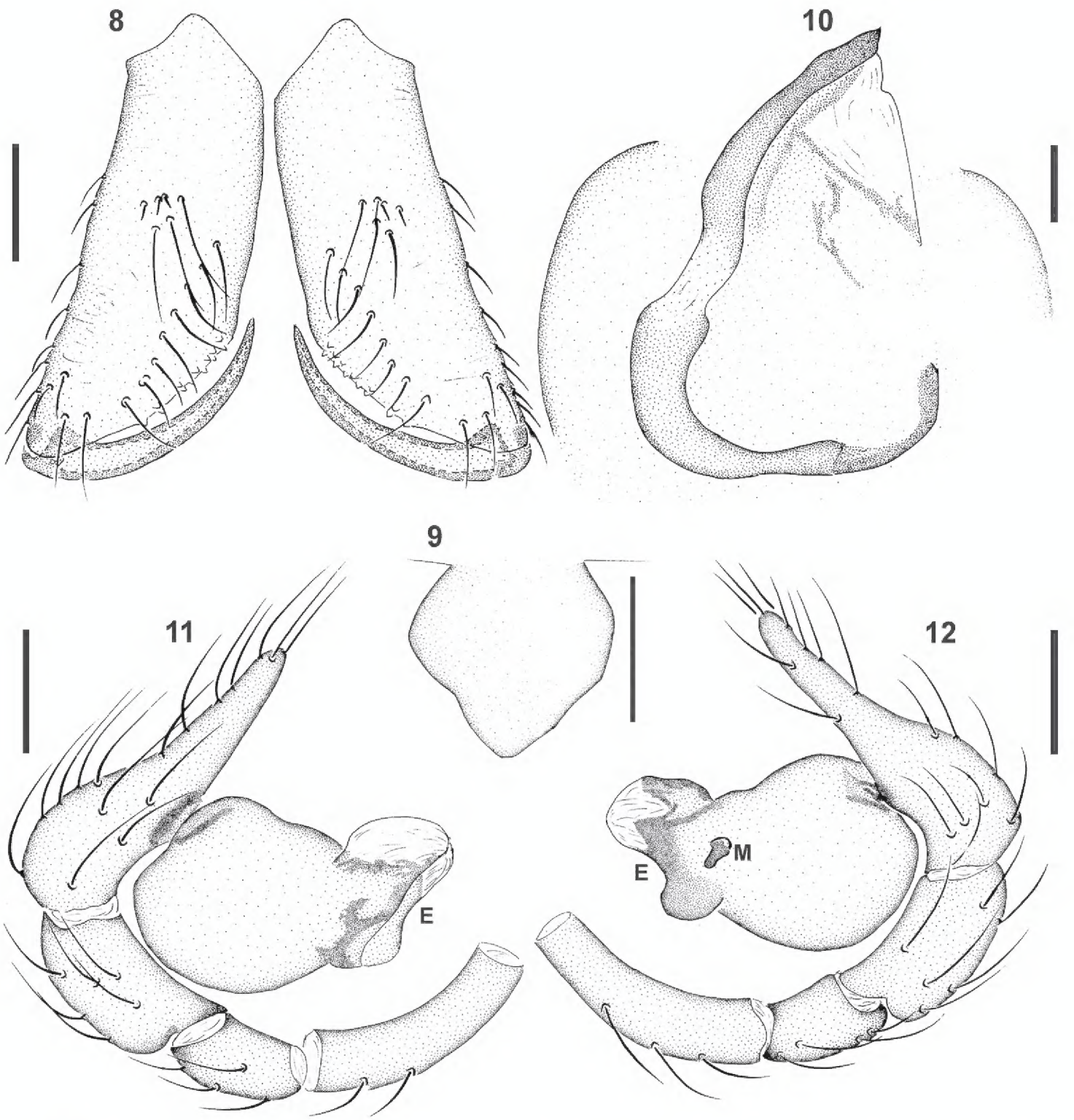
Etymology. The specific name is derived from the Latin word "*globosus*", meaning "spherical", and refers to the ball-shaped spermatheca in the female; adjective.



Figures 1–4. *Cangoderces globosa* sp. n., male paratype. **1** habitus, dorsal view **2** embolus tip, apical view **3** palp, prolateral view **4** palp, retrolateral view. Abbreviations: E – embolus; M – modifier. Scale bars: 0.25 mm (**1**); 0.05 mm (**2**); 0.10 mm (**3, 4**).



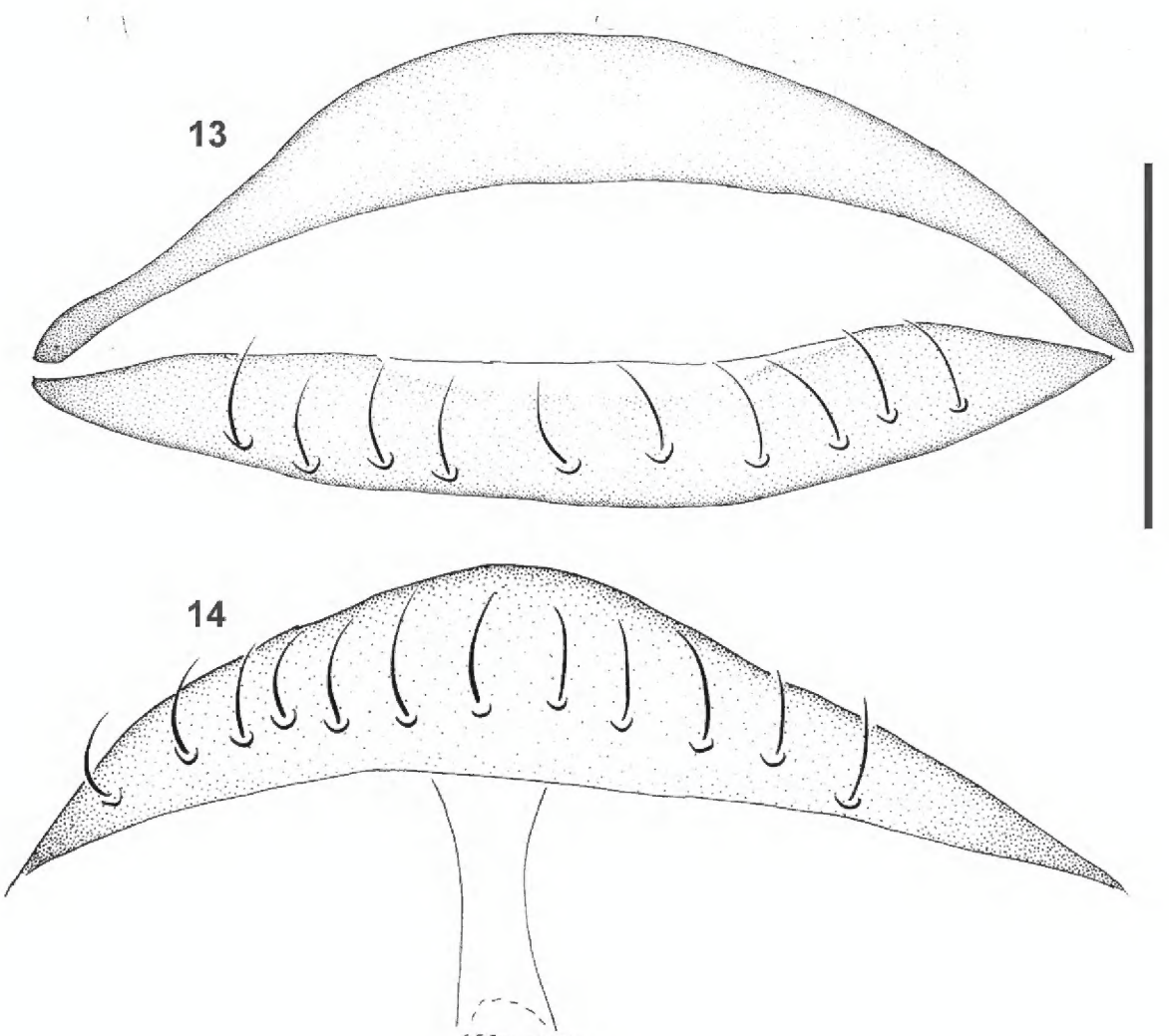
Figures 5–7. *Cangoderces globosa* sp. n., female holotype. **5** habitus, dorsal view **6** habitus, ventral view **7** genitalia, dorsal view. Abbreviation: S – spermatheca. Scale bars: 0.25 mm (**5, 6**); 0.05 mm (**7**).



Figures 8–12. *Cangoderces globosa* sp. n., male paratype. **8** chelicerae, posterior view **9** colulus, ventral view **10** embolus tip, apical view **11** palp, prolateral view **12** palp, retrolateral view. Abbreviations: E – embolus; M – modifier. Scale bars: 0.10 mm (**8, 11, 12**); 0.02 mm (**9**); 0.05 mm (**10**).

Diagnosis. Males of this new species can be distinguished from all other species in the genus by the distally broadened embolus, forming two rounded lobes (Figs 2–4, 10–12) and the presence of a rod-like modifier retrolaterally on the male palpal bulb (Figs 2, 4, 12). In this genus, females share only with *C. lewisi* the ball-shaped spermatheca, but can be distinguished from the latter species by the gradual broadening of the copulatory duct before the spermatheca (Figs 7, 14), while in *C. lewisi,* the copulatory duct is almost parallel-sided before expanding abruptly at the base of the spermatheca (see Harington 1951: figs 5, 6; Brignoli 1978: fig. 3).

Description. Male (paratype, NCA 2017/1190).



Figures 13–14. *Cangoderces globosa* sp. n., female holotype. **13** genital area, ventral view **14** genitalia, dorsal view. Abbreviation: S – spermatheca. Scale bars: 0.10 mm.

Total length 1.32. Prosoma 0.63 long, 0.55 wide. Opisthosoma 0.66 long, 0.63 wide. Carapace, sternum saffron yellow (Fig. 1). Legs, labium, endites and chelicerae yellow. Six eyes, anterior row of four eyes slightly recurved; AME close together, nearly touching, separated from ALE by 1/4 of ALE diameter; lateral eyes contiguous. Chelicerae (Fig. 8) longer than endites, with seven tiny granulate denticles on promargin, six small triangular teeth on retromargin. Leg patellae I–IV with one long spine distally, tibiae I–IV with one long spine medially. Leg measurements: I 3.95 (1.25, 0.19, 1.12, 0.81, 0.58); II 3.42 (1.12, 0.17, 1.00, 0.63, 0.50); III 2.40 (0.80, 0.16, 0.62, 0.44,

0.38); IV 3.27 (1.06, 0.17, 0.94, 0.60, 0.50). Leg formula 1243. Abdomen baby-blue, pear-shaped, decorated with long hairs; colulus shield-shaped (Fig. 9). Palp (Figs 2–4, 10–12) without prolateral cymbial apophysis; bulb yellowish, nearly round in ventral view, with one rod-like modifier retrolaterally; embolus membranous, forming two broad rounded lobes distally, with distal part sclerotised.

Female (holotype, NCA 2017/1191).

Similar to male in colouration and general features, but with smaller body size and shorter legs (Figs 5, 6). Total length 1.09. Prosoma 0.58 long, 0.54 wide. Opisthosoma 0.81 long, 0.50 wide. Leg measurements: I 3.64 (1.12, 0.17, 1.10, 0.69, 0.56); II 3.21 (1.00, 0.16, 0.93, 0.62, 0.50); III 2.29 (0.75, 0.17, 0.60, 0.41, 0.36); IV 3.12 (0.95, 0.16, 0.88, 0.69, 0.44). Leg formula: 1243. Genital area swollen (Fig. 13). Spermatheca (Figs 7, 14) short, strong and ball-shaped, copulatory duct broadening distally to base of spermatheca.

Type material. Holotype ♀, SOUTH AFRICA: *Mpumalanga Province*, Sabie, Mountain Gorge on Road 37, 25°10.150'S, 30°45.832'E, 30.IX.2012, leg. J.A. Neethling, sifting leaf litter in Afromontane forest (NCA 2017/1191). Paratype: 1♂, same data as holotype (NCA 2017/1190).

Remark. After the male paratype was photographed and measurements taken, the abdomen broke off and was lost.

Discussion

Telemidae is one of the smallest spider families currently recognised, with 10 genera and 78 species previously described (World Spider Catalog 2018), to which *Cangoderces globosa* sp. n. is added in this paper. This is the thirteenth telemid species described from Africa. As seems to be the general pattern for most Telemidae, all five species of *Cangoderces* seem to have very localised distributions (Brignoli 1978; Baert 1985; Wang and Li 2011), with the South African species only known from their type localities: *C. globosa* sp. n. from an Afromontane forest in the Mpumalanga Province in north-eastern South Africa and *C. lewisi* from the Cango Caves near Oudshoorn in the Western Cape Province in the south-western parts (Fig. 15).

Species of *Cangoderces* appear to have quite variable genitalic morphology in both sexes. Males of the new species, *C. globosa* sp. n., are distinct in the genus by having a rod-like modifier on the retrolateral surface of the bulb (e.g. Fig. 2), which is lobate in *C. lewisi* (Brignoli 1978: fig. 2) and falculate in *C. christae* and *C. milani* (Wang and Li 2011: figs 2, 6); in these three latter species, the modifier is closely associated with the base of the embolus. The modifier may possibly be absent in *C. cameroonensis* and *C. koupeensis* (Baert 1985: figs 6, 9), but this requires further study. In addition, the embolus is clearly broadened distally into two rounded lobes in *C. globosa* sp. n., while comprising two pointed lobes in *C. lewisi* (Brignoli 1978: fig. 2), a blunt rounded lobe and longer pointed lobe in *C. cameroonensis* and *C. koupeensis* (Baert 1985: figs 6, 9) and an elongate lobe in *C. christae* and *C. milani* (Wang and Li 2011: figs 2, 6).

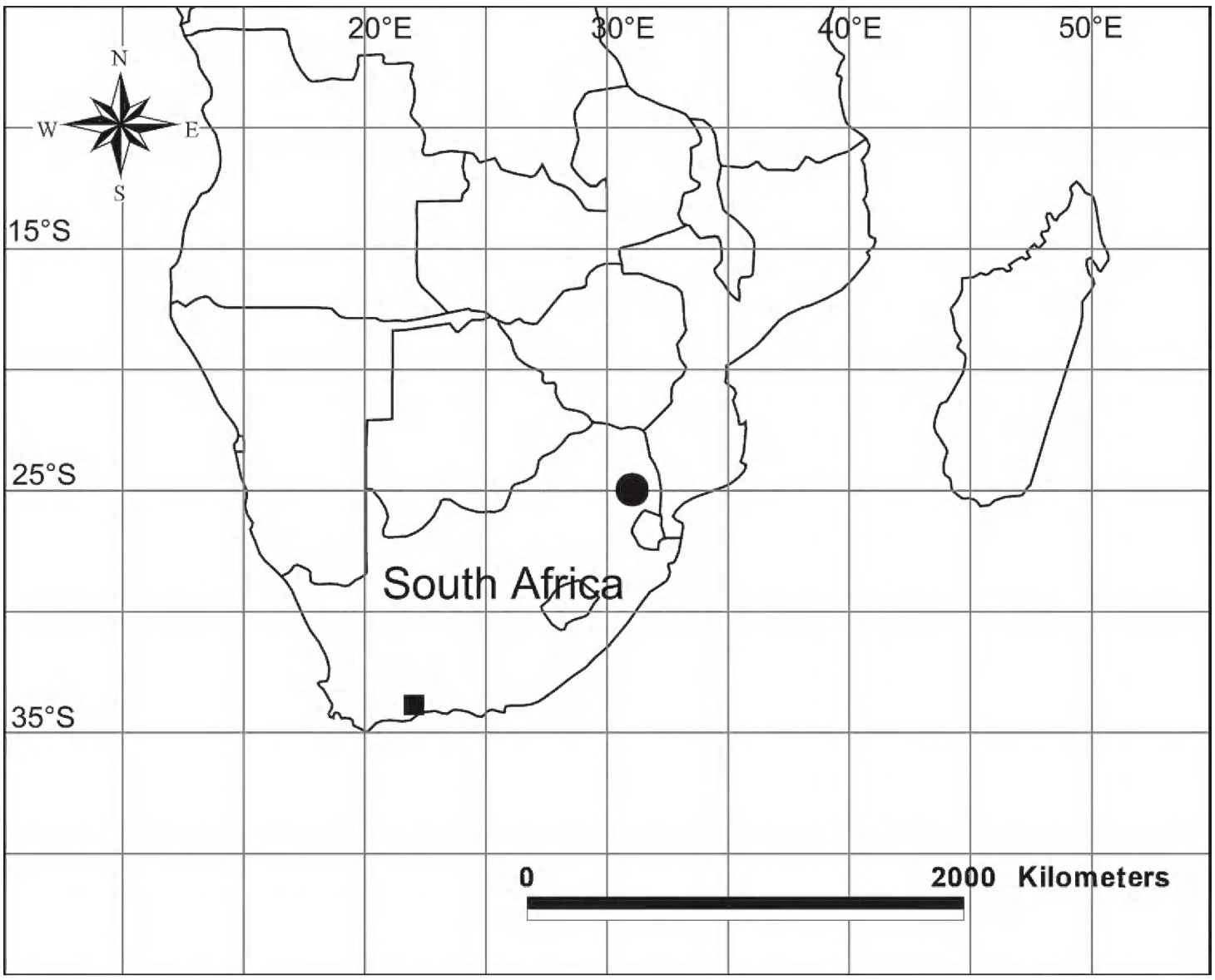


Figure 15. Locality records for *Cangoderces lewisi* (square) and *C. globosa* sp. n. (circle) in South Africa.

Females of *C. globosa* sp. n. have a ball-shaped spermatheca (e.g. Fig. 7), which is shared only with *C. lewisi* (Harington 1951: figs 5, 6). The spermatheca is trapezoid in *C. cameroonensis* and *C. koupeensis* (Baert 1985: figs 7, 8), strongly curved ventrally with several distal outgrowths in *C. christae* (Wang and Li 2011: fig. 4), and narrowed distally with a median finger-like receptacle in *C. milani* (Wang and Li 2011: fig. 8).

Although these genitalic features potentially provide useful evidence regarding the phylogenetic relationships between *Cangoderces* species, the localised endemism of most of the species, and the current sporadic distribution of the genus in Africa, suggests that there may be a considerable undiscovered diversity of these spiders. Only once the fauna has been more completely described can the relationships of members of the genus be more accurately assessed.

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